

Round 2 Management Actions Workshop – Integration Applications



DRAFT WORKSHOP WORKSHEET

Mgmt. Action Category / Subcategory	Opportunity for Strategic Integration	Conditions Needed for Success/Maximizing Benefits of Strategic Integration	Implementation Challenges to Integration	Ways to Overcome Challenges and/or Maximize Benefits of Strategic Integration
Additional Floodplain and Reservoir Storage ➤ Floodplain Storage	<ul style="list-style-type: none"> • Groundwater recharge • Floodplain ecosystem functions and habitats (riparian, wetland, and shallow water habitat) • ... 	<ul style="list-style-type: none"> • Soil conditions must be suitable for recharge • Groundwater overdraft conditions and/or local supply needs exist • Hydrologic and geologic conditions that sustain healthy ecosystems (as found in historical floodplains or flood basins) • Proximity to existing habitat or connection to existing habitat corridors • ... 	<ul style="list-style-type: none"> • Landowner willingness • Infrastructure needed to extract and deliver recharged groundwater • Feasibility as a groundwater recharge feature would require frequent inundation • Sediment deposition would affect groundwater recharge rates • Disruptive to existing land uses (agricultural practices and revenue generation) • Funding for long-term maintenance of restored habitat area • Frequent flooding required for maximum environmental benefits • Fish stranding • Potential impacts to adjacent landowners (presence of endangered species) • ... 	<ul style="list-style-type: none"> • Easements to compensate for changes in land uses • Recovery/clean-up assistance after floods • Construct operable inlet/outlet features to allow inundation and recharge outside flood season • Regular maintenance of storage area to preserve recharge potential • Pre-fund long-term maintenance at time of implementation • Construct low flow channels and egress features to prevent stranding • Safe Harbor Agreements • ...

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Additional Floodplain and Reservoir Storage ➤ Reservoir Storage	<ul style="list-style-type: none"> • Increased surface water storage (supply) and water management flexibility • Increased power generation • Increased cold-water pool for fisheries management • ... 	<ul style="list-style-type: none"> • Requires location that meets system operational needs of flood, water supply, and/or ecosystem • ... 	<ul style="list-style-type: none"> • Significant coordination among implementing agencies and users required (allocation of storage space, operating rules, cost sharing, etc) • ... 	<ul style="list-style-type: none"> • ...

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Storage Operations	<ul style="list-style-type: none"> • Increased water management flexibility, including conjunctive use • Support for more natural hydrologic regime to improve ecosystem functions • ... 	<ul style="list-style-type: none"> • Requires location that meets system operational needs of flood, water supply, and/or ecosystem • Combine with downstream restoration actions (floodplain and flood corridor) • Combine with downstream groundwater recharge or other storage • ... 	<ul style="list-style-type: none"> • Significant coordination among implementing agencies and users required (allocation of storage space, operating rules, cost sharing, etc) • ... 	<ul style="list-style-type: none"> • ...

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Flood Protection System Modification ➤ Reduce Physical Flow Constrictions	<ul style="list-style-type: none"> • No direct water supply integration opportunities • Promote natural channel erosion and deposition processes • Aquatic habitat • ... 	<ul style="list-style-type: none"> • Combine with other improvements to transportation, utility infrastructure, others • Locations where fish migration is constrained or habitat could be improved • ... 	<ul style="list-style-type: none"> • Interagency coordination • ... 	<ul style="list-style-type: none"> • ...

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Flood Protection System Modification > Bypasses	<ul style="list-style-type: none"> • Groundwater recharge • Floodplain ecosystem functions and habitats (riparian, wetland, and shallow water habitat) • Habitat connectivity and migration corridors • ... 	<ul style="list-style-type: none"> • Soil conditions must be suitable for recharge • Groundwater overdraft conditions and/or local supply needs exist • Hydrologic and geologic conditions that sustain healthy ecosystems (as found in historical floodplains or flood basins) • Regular, seasonal flows required for maximum environmental benefits • ... 	<ul style="list-style-type: none"> • Infrastructure needed to extract and deliver recharged groundwater • Feasibility as a groundwater recharge feature would require frequent flows through bypass • Sediment deposition after major floods would affect groundwater recharge rates • Disruptive to existing land uses (agricultural practices and revenue generation) • Funding for long-term maintenance of restored habitat areas or fish passage features • Fish stranding • Potential impacts to adjacent landowners (presence of endangered species) • Vegetation management to preserve flood flow capacity • ... 	<ul style="list-style-type: none"> • ...

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Flood Protection System Modification ➤ Existing Levees (raise, restore, or improve)	<ul style="list-style-type: none"> • No direct integration opportunities for water supply • Native riparian and shaded riparian aquatic habitat improvement • ... 	<ul style="list-style-type: none"> • Locations where berms and other features can be accommodated within the existing flood corridor • Proximity to existing habitat or connection to existing habitat corridors • ... 	<ul style="list-style-type: none"> • Vegetation management to preserve flood flow capacity • Funding for long-term maintenance of restored habitat features • ... 	<ul style="list-style-type: none"> • ...

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Flood Protection System Modification > Setback Levees and New Levees	<ul style="list-style-type: none"> • No direct integration opportunities for water supply • Native riparian and shaded riparian aquatic habitat improvement • Floodplain ecosystem functions and habitats (wetland and shallow water habitat) • Promote sediment transport and channel forming processes, including meander migration • Habitat connectivity and migration corridors • ... 	<ul style="list-style-type: none"> • Hydrologic and geologic conditions that sustain healthy ecosystems (as found in historical floodways and floodplains) • Proximity to existing habitat or connection to existing habitat corridors • ... 	<ul style="list-style-type: none"> • Vegetation management to preserve flood flow capacity • Funding for long-term maintenance of restored habitat features • Fish stranding • Potential impacts to adjacent landowners (presence of endangered species) • Disruptive to existing land uses (agricultural practices and revenue generation) • ... 	<ul style="list-style-type: none"> • ...

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Flood Protection System Modification ➤ Ring Levees	<ul style="list-style-type: none"> • No direct water supply integration opportunities • Limited or no direct environmental integration opportunities • ... 	<ul style="list-style-type: none"> • ... 	<ul style="list-style-type: none"> • ... 	<ul style="list-style-type: none"> • ...

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<p>Operation and Maintenance ➤ Dredging</p>	<ul style="list-style-type: none"> • No direct opportunities for water supply or environmental integration • Beneficial re-use of dredged materials (construction) • ... 	<ul style="list-style-type: none"> • Sediments should not contain hazardous materials • Demand exists for sediments • ... 	<ul style="list-style-type: none"> • Sediment in many Central Valley rivers/streams contain methyl mercury • Location available to prepare sediment for re-use • ... 	<ul style="list-style-type: none"> • ...

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Operation and Maintenance ➤ Vegetation Management	<ul style="list-style-type: none"> • No direct water supply integration opportunities • Invasive species management and promotion of native plant species • ... 	<ul style="list-style-type: none"> • Coordination on a regional scale with other efforts to eradicate non-native/invasive species • ... 	<ul style="list-style-type: none"> • Conflicts with current USACE policies related to vegetation on levees • Difficult for maintenance crews to distinguish between native and non-native/invasive species • ... 	<ul style="list-style-type: none"> • ...

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<p>Operation and Maintenance ➤ Bank Stabilization</p>	<ul style="list-style-type: none"> • No direct water supply integration opportunities • Opportunities to increase shaded riverine aquatic and riparian habitats • ... 	<ul style="list-style-type: none"> • Locations where berms, benches, and other habitat features can be accommodated within the existing flood corridor • Proximity to existing habitat or connection to existing habitat corridors • ... 	<ul style="list-style-type: none"> • Conflicts with current USACE policies related to vegetation on levees • Funding for long-term maintenance of restored habitat features • ... 	<ul style="list-style-type: none"> • ...

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Floodplain Management ➤ Floodproofing	<ul style="list-style-type: none"> No direct opportunities for water supply or environmental integration 			
Floodplain Management ➤ Other non-physical actions (education, insurance, etc)	<ul style="list-style-type: none"> No direct opportunities for water supply or environmental integration 			
Disaster Preparedness and Flood Warning	<ul style="list-style-type: none"> No direct opportunities for water supply or environmental integration 			
Flood Fighting, Emergency Response, and Flood Recovery	<ul style="list-style-type: none"> No direct opportunities for water supply or environmental integration 			
Ecosystem Restoration	<ul style="list-style-type: none"> See opportunities listed above 			

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Permitting	<ul style="list-style-type: none"> No direction integration opportunity, but could be used as tools to facilitate integration and overcome integration challenges 			
Policy and Regulations	<ul style="list-style-type: none"> No direction integration opportunity, but could be used as tools to facilitate integration and overcome integration challenges 			
Finance and Revenue	<ul style="list-style-type: none"> No direction integration opportunity, but could be used as tools to facilitate integration and overcome integration challenges 			

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